

# Preface

Memory, emotions, reward, motivation, dependence, appetite, sociability. These are only some of the multiple domains in which the (endo)cannabinoid system is involved. We usually think of marijuana and cannabis derivatives as recreational compounds. But what do we know about their actions on the brain, about how the endocannabinoid system modulates such numerous and important aspects of our life? Are we really aware of the uniqueness of this, until recently unknown but, ubiquitous neuromodulatory system? What can we learn from recent progress in research?

These are all questions that recent research allowed us to start addressing. After the finding of specific receptors that are activated by smoking marijuana, it was the time of the discovery of a number of endogenous marijuana-like substances called endocannabinoids followed by the identification of metabolic enzymes for such ligands. Other groundbreaking advances in the field then paved the way for an enthusiastic research activity on this fascinating regulatory system. And the more we know the more we want to know. This book is intended to offer an all-embracing overview of the most recent discoveries on the role played by the endocannabinoid system in the modulation of memory, emotions, reward and motivation, and how it interferes with the actions of other drugs of abuse and underlying neurotransmission systems.

In *Cannabinoid Modulation of Emotion, Memory, and Motivation* leading experts in the field critically illustrate and discuss in dedicated chapters recent breakthroughs on the effects of cannabinoids on memory, learning and cognition, fear-coping strategies and emotional processing, motivation and reward. A particular emphasis is given to the delicate issues of cannabis use by adolescents and the emerging role of gender and sexual hormones in the frequency and consequences of its use, the problem of poly-substance abuse, and the diffusion of potent synthetic cannabinoids on the internet.

The book is organized into three distinct sections. Part I focuses on the modulation of memory and emotions by cannabinoids, featuring the underlying neurobiology and emphasizing their effects on fear, anxiety and depression. Part II is centered on reward and motivation; it discusses subjective, cognitive, and social effects of cannabinoids and their impact of the motivational brain system with a particular

attention on age and sex effects. Finally, interactions of cannabinoids with other drugs of abuse such as nicotine, alcohol, opioids and methamphetamine are illustrated in Part III, with a special focus on their interaction with the dopaminergic neurotransmission system.

This book will stimulate curiosity toward research on (endo)cannabinoids from molecular neurobiology to behavior to therapeutic implications and will be of help to students, scientists and clinicians for better appreciating this captivating brain endogenous system and its powerful modulatory action.

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